

$^1\text{H}(^{21}\text{N}, ^{21}\text{N}'\gamma)$  **2010EI05**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	R. B. Firestone	NDS 127, 1 (2015)	15-Jan-2015

Primary beam= $^{40}\text{Ar}$  at 63 MeV/nucleon, target= $^{181}\text{Ta}$ . Momentum and mass analysis of fragments by RIPS separator at RIKEN. Identification of fragments of  $^{17}\text{B}$ ,  $^{19}\text{C}$ ,  $^{20}\text{C}$ ,  $^{21}\text{N}$  and  $^{22}\text{N}$  in the secondary beam by energy loss, time-of-flight, and magnetic rigidity ( $B\rho$ ) information.

Mean energy of secondary  $^{21}\text{N}$  beam=52.0 MeV/nucleon for hydrogen target and 48.1 MeV/nucleon for  $^{208}\text{Pb}$  target. The scattered particles were detected and identified based on total energy and time-of-flight measurements. Array of plastic scintillators for particle detection and array of 160 NaI(Tl) crystals (DALI2 array) for  $\gamma$ -rays were used. Measured  $E_\gamma$ ,  $I_\gamma$ , Doppler-corrected  $\gamma$  spectra.

The level scheme is based on that proposed in [2008So09](#).

 $^{21}\text{N}$  Levels

E(level)	$J^\pi$	Comments
0	(1/2 <sup>-</sup> )	
1140 30	(3/2 <sup>-</sup> )	$\sigma=6.6$ mb 8 for hydrogen target and 11.4 mb 34 for Pb target.
2350 45	(5/2 <sup>-</sup> )	$\sigma=12.3$ mb 16 for hydrogen target. Not populated in Pb target.

 $\gamma(^{21}\text{N})$ 

$E_\gamma$	$I_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
1140 30	100 10	1140	(3/2 <sup>-</sup> )	0	(1/2 <sup>-</sup> )	B(E2) $\downarrow=0.0056$ 18 ( <a href="#">2010EI05</a> )
1210 33	65 6	2350	(5/2 <sup>-</sup> )	1140	(3/2 <sup>-</sup> )	

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Intensities: Relative  $I_\gamma$

## Legend

<span style="color: black;">→</span>	$I_\gamma < 2\% \times I_\gamma^{\text{max}}$
<span style="color: blue;">→</span>	$I_\gamma < 10\% \times I_\gamma^{\text{max}}$
<span style="color: red;">→</span>	$I_\gamma > 10\% \times I_\gamma^{\text{max}}$

